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ITC NEWS

- 45 - 2010

An ITC 120F3

at the Saukopf Security Gallery for the tunnel on the B38

Fig. 1: ITC 120F3 during Tunnel Heading expansion

Building of a emergency gallery for the existing Saukopf tunnel with shotcrete resp. pressure water density internal leaf:
- West bound: 9,26 m², Length: 1927 m
- East bound: 17,28 m², Length: 762 m
10 connection galleries, each approx. 15 m conventional tunnelling and heading acc. to NATM

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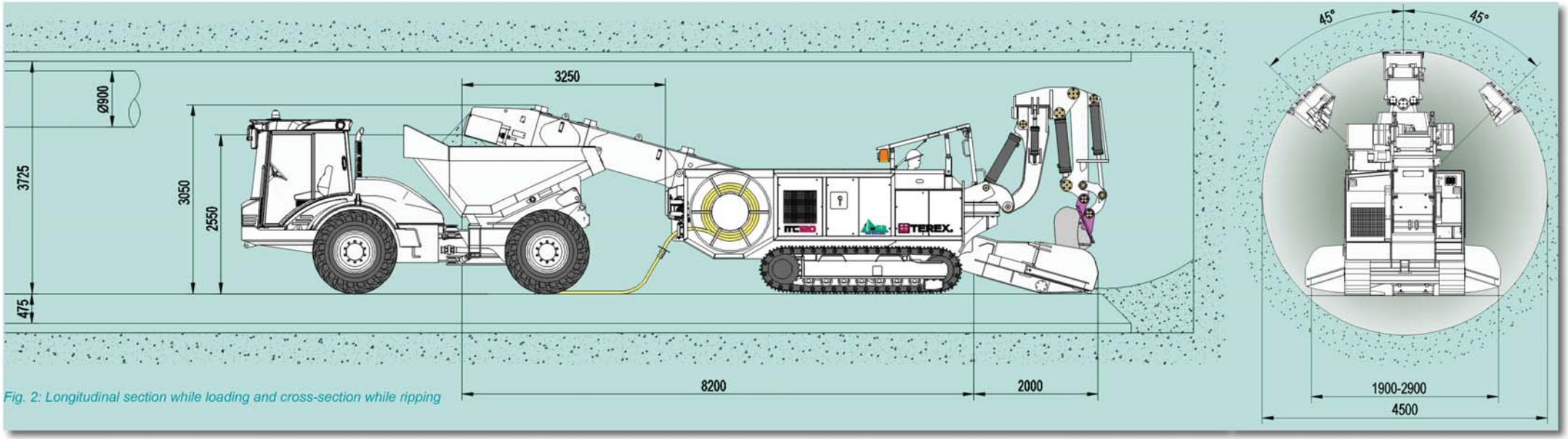

Fig. 2: Longitudinal section while loading and cross-section while ripping

Press release

Wiesbaden, 10.07.2008

Transport State Secretary Güttler: New Security Gallery for added safety in the Saukopf tunnel.

The province of Hessen has approved building permission for the planned Security Gallery in the Saukopf tunnel between Birkenau (district of Bergstrasse) and Weinheim (district Rhein-Neckar). State Secretary Klaus-Peter Güttler signed the planning approval for the project of 23 million Euro. This is part of the safety plan for the tunnel on the B 38 motorway, for which the province of Hessen and Baden-Württemberg are responsible.

Half of the new 2.7 km long gallery is situated in each of these two provinces. The people of Baden-Württemberg have already granted building permission on their side some days ago. There will be 10 emergency exits in the new gallery, which is to be built parallel to the highway.

«With this signature we have made a big step towards the realisation of the safety-related renovation of the Saukopf tunnel», said Güttler today in Wiesbaden. He added: «The work that is to be done on the Saukopf tunnel will increase the road safety of this tunnel, which was first opened in 1999, and as a result create the conditions to prevent accidents.»

The planning approval will be sent soonest to the participants. Additionally an official copy of the approval and the plans will be displayed in the community of Birkenau, concluded Güttler.

Contact / Spokesman:

Christoph Zörb

Hessisches Ministerium für Wirtschaft, Verkehr und Landesentwicklung

Kaiser-Friedrich-Ring 75

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Fig. 3: Tunnel with ventilation

Road- and transport administration of Hessen:

The work on the gallery for the 2.7 km long Saukopf tunnel started as planned in the 4th quarter of 2009. As the department of road and transport Bensheim (ASV) communicated, the project to build the new gallery south of the main tunnel was awarded to an Austrian construction company (Jägerbau from Schruns). According to the statement of the Bensheimer administration the tender sum is about 24 Mio.

The gallery is to be built in the southern section of the main tunnel with 10 cross passages, interspaced at 24m.. As agreed with the emergency services there will be additional space in the area of both the Weinheimer and Birkenau entrances for emergency vehicles and turning points.

Work started on the Baden-Württemberg and Hessen sides in the beginning of 2010, and according to the calculated schedule the project should be completed towards the middle of 2012.

In order to lowering the ground water level while heading, the armouring in the top of the main tunnel needs to be retrofitted first. «When the Saukopf tunnel was built no one was contemplating that one day there would be a Security Gallery alongside the Tunnel, so for economic reasons less armouring was used in the top», explains ASV. This job .

(Ref.: Abridgement of the Road- and Transport administration Hessen)

Fig. 4: East entrance

Technical Data:

Medium Tunnelling Capacity: 4,3m/day

Shotcrete protection: 5-25 cm

Internal leaf: 30-40 cm causing difficulties as natural asbestos is present

Geology:

Gronodiorit, Detritus (weathered Granodorit)

Fig. 5: Installation of spits

Tunnelling heading machine chosen:

For the East tunnelling an electrical Tunnel Heading- and Loading machine Typ ITC 120F3 was used.

Special work equipment was designed for this machine, a so-called Tunnel boom, which allows the bucket arm to pivot 45° and to follow the contours of the top heading. Because of the geological qualifications the tear-out force was judged to be of vital importance.

The machine is fitted with a quick hitch system

Main Data		
Basic machine Schaeff , Type	ITC	120 F3
Width of basic machine	mm	1900
Inside width of conveyor	mm	620
Electric drive, Power @ 400 Volt, 50 Hz	kW	55
Tramming speed	km/h	0-3,6
Conveyor chain speed	m/s	0,6
Conveying capacity	m³/h	200
Specific ground pressure	kp/cm²	1,0
Pulling force	kN	140
Global weight approx.	t	22

TUNNEL HEADING and LOADING MACHINE Type ITC 120 F3

Fig. 6: Fore polling top heading

Fig. 7: ITC 120 while loading the debris

Fig. 8: Heading of the expansion (niche)

Fig. 9: ITC 120 while floor cleaning

Fig. 10: Ergonomic working equipment

Fig. 11: Narrow conditions

Fig. 12: Secured heading face

Fig. 13: Exact ripping

Fig. 14: 10t Dumper

Fig. 15: Holy Barbara